IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

APPLICANTS::   Pawan Goyal

SERIAL NO.::   09/503,975

FILING DATE: February 14, 2000

TITLE: Restricting Communication of Selected Processes to a Set of Specific Network Addresses

EXAMINER: Larry D. Donaghue

GROUP ART UNIT: 2154

ATTY. DKT. NO.:   21816-04464

MAIL STOP RCE
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

Declaration of Pawan Goyal

I, Pawan Goyal, hereby declare the following:

1.   I am the inventor of the invention described and claimed in United States Patent Application Serial Number 09/503,975, entitled "Restricting Communication of Selected Processes to a Set of Specific Network Addresses," filed on February 14, 2000 (hereafter "the Application").

2.   I was employed by Ensim Corporation ("Ensim") from January 1999 to January 2002. My title at Ensim was Engineering Director. Ensim has a place of business at 1366 Borregas Avenue, Sunnyvale, CA 94089. Ensim is the assignee of the Application.

3.   I am providing this declaration to establish a) conception of the invention described and claimed in the Application prior to the effective dates of United States

Patent 6,529,985 to Deianov et al., filed February 4, 2000 ("Deianov"), and United States Patent 6,754,716 to Sharma et al., filed February 11, 2000 ("Sharma"), and b) due diligence from prior to the effective dates of Deianov and Sharma (February 4, 2000, and February 11, 2000, respectively) to the filing date of the Application (February 14, 2000). The Examiner cited Deianov and Sharma in an Office Action dated January 26, 2005.

Conception

4. During my employment with Ensim, I conceived of methods and computer program products for restricting communication of selected processes to a set of specific network addresses (hereafter "the Invention") that are now described and claimed in the Application. This conception occurred prior to February 4, 2000, the effective date of Deianov, and February 11, 2000, the effective date of Sharma.

5. Attached hereto as Exhibit A is a redacted version of a true and correct copy of an internal Ensim document describing the Invention. This document was prepared using information provided by me to document the operation of the Invention. The implementation described is one embodiment of the claimed invention. "The interception module stores this information in its translation table in an entry of the form <pid, interface info>" is an implementation of the claim language "associating at least one selected process with at least one network address." (This "information" is described elsewhere in the document as information about an application to be run (for example, the application's process ID) and information about the interface with which the application should be associated (for example, the interface's IP address).) "When the application performs one of the system calls that are listed in step 4, the interception

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module is called by the kernel" and "[o]n a bind system call, the following changes are made before the original bind function is invoked: If the bind is to the IP address that was supposed to be associated with that pid anyway, the call is not modified" is an implementation of the claim language "determining whether an attempted network address-based communication of a selected process is via an associated address; and in response to a determination that the communication is via an associated address, allowing the communication to proceed."

6. Accordingly, the invention described and claimed by the Application was conceived prior to February 4, 2000.

Diligence

7. Jeff Brill, a patent attorney, prepared the Application. On January 26, 2000, Jeff Brill mailed me a first draft of the Application for my review. Attached hereto as Exhibit B is a true and correct copy of the cover letter that accompanied this first draft.

8. I reviewed the first draft and, on February 3 and 4, 2000, discussed with Jeff Brill my comments. On February 7, 2000, Jeff Brill mailed me a second draft of the Application for my review. Attached hereto as Exhibit C is a true and correct copy of the cover letter that accompanied this second draft, along with a true and correct copy of the accompanying mailing receipt. Exhibit C also references the conversations that occurred on February 3 and 4, 2000.

9. I reviewed the second draft and, on February 9, 2000, discussed with Jeff Brill my comments. On February 10, 2000, Jeff Brill mailed me a third draft of the Application for my review and execution. Attached hereto as Exhibit D is a true and

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correct copy of the cover letter that accompanied this third draft, along with a true and correct copy of the accompanying mailing receipt. Exhibit D also references the conversation that occurred on February 9, 2000.

10.   I reviewed and executed the Application and returned it to Jeff Brill. The executed Application was filed on February 14, 2000.

11.   Accordingly, the Invention was constructively reduced to practice on February 14, 2000, and diligence was present from prior to the effective dates of Deianov and Sharma (February 4, 2000, and February 11, 2000, respectively) to the date of constructive reduction to practice.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

8/24/05
Date

Pawan Goyal

Ex. A

1. The fexec component is informed, using a mechanism such as its command line or a batch file, about the application to be run and the interface with which the application should be associated.
2. The fexec module uses standard system calls to determine information about the interface such as its IP address and interface flags and stores this information internally.
3. The fexec component loads an *interception kernel module* that contains within it a translation table into the running kernel.
4. When the interception module is initialized, it overwrites the kernel's system call table so that the *fork, clone*, and *exit* system calls are diverted to entry points in the interception module. It also modifies the TCP protocol stack so that the *bind* and *connect* procedures are also diverted to the interception module.
5. The fexec component communicates with the interception module using any of the standard mechanisms for user-kernel communication and tells the module its process ID and the interface that it obtained in step 2.
6. The interception module stores this information in its translation table in an entry of the form <pid, interface info>
7. Finally, the fexec component uses the *exec* system call to overwrite its binary image with that of the specified application.
8. When the application performs one of the system calls that are listed in step 4, the interception module is called by the kernel.
9. On a *fork* or *clone* system call, the translation table is updated so that the pid created by these calls is also associated with the interface information.
10. On a *bind* system call, the following changes are made before the original bind function is invoked:
    * If the bind is to the IP address that was supposed to be associated with that pid anyway, the call is not modified
    * If the bind is to the 'localhost' special address (127.0.0.1) then the localhost argument in the system call is modified from 127.0.0.1 to the IP address stored in the translation table
    * If the bind is to the 'wildcard special address (INADDR_ANY) then the wildcard argument in the system call is modified from INADDR_ANY to the IP address stored in the translation table
    * A bind to any other address is notified as an error
11. On a *connect* system call the following changes are made before the original connect function is invoked

- If the connect is to the 'localhost' special address (127.0.0.1) then the localhost argument in the system call is modified from 127.0.0.1 to the IP address stored in the translation table
- If the connect is to the 'wildcard' special address (0.0.0.0) then the wildcard argument in the system call is modified from 0.0.0.0 to the IP address stored in the translation table
- A connect to any other address is unmodified

12. On an *exit* system call, the translation table entry is cleared for that pid before the original call is invoked.

FENWICK & WEST LLP

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TEL 650.494.0600 | FAX 650.494.1417 | www.fenwick.com

January 26, 2000

EMAIL JBRILL@FENWICK.COM
DIRECT DIAL 650.858.7291

JEFF BRILL

Pawan Goyal
Ensim Corporation
1215 Terra Bella Avenue
Mountain View, CA 94043

RE: U.S. Patent Application
        Title: RESTRICTING COMMUNICATION OF
                     SELECTED PROCESSES TO A SET OF
                     SPECIFIC NETWORK ADDRESSES
        Inventors: Pawan Goyal
        Our Ref.:   21816-04464 (Case 4464)

Dear Pawan:

I am pleased to enclose for your review and comments a draft of the specification, claims, and drawings for the Restriction of Network Address-Based Communication invention (Ensim application 7).

Please examine the entire application carefully for technical accuracy and completeness of description of the invention. The patent specification must contain sufficient information to do two things: (1) enable one skilled in the art to restrict communication of selected processes to a set of specific network addresses, based on the description; and (2) describe the best mode that you know of for restricting communication of selected processes to a set of specific network addresses, as claimed.

In order to minimize further preparation of this application, please thoroughly review the specification, claims and drawings and make all corrections or additions that are necessary. Insert additional pages of comments if necessary, or to suggest changes to the drawings.
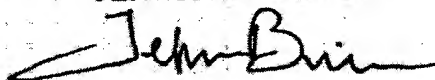
Please note that the attached pen drawings serve as examples only. I have arranged for a technical artist to create formal versions of these drawings to be filed with the United States Patent and Trademark Office.

Please note that once the patent application is filed with the United States Patent & Trademark Office, we will not be able to make substantive changes to the specification without losing the benefit of the filing date for the substantive changes.

Please contact me at (650) 858-7291 if you have any questions or comments regarding this or other matters.

Sincerely,
FENWICK & WEST LLP

Jeff Brill

Enclosure
cc: S. Keshav (w/o enclosure)
       R. Sachs (w/o enclosure)

21816/04464/DOCS/993812.1

Ex. C

February 7, 2000

JEFF BRILL

EMAIL JBRILL@FENWICK.COM
DIRECT DIAL 650.858.7291

VIA FEDERAL EXPRESS
Airbill No. 8146 1365 8030
Pawan Goyal
Ensim Corporation
1215 Terra Bella Avenue
Mountain View, CA 94043

RE: U.S. Patent Application
Title: RESTRICTING COMMUNICATION OF SELECTED PROCESSES TO A SET OF SPECIFIC NETWORK ADDRESSES
Inventor: Pawan Goyal
Our Ref.: 21816-04464 (Case 4464)

Dear Pawan:

Enclosed is the latest version of the above-referenced application for your review. This version of the application reflects our conversations of February 3 and 4. The material we discussed is described in the last paragraph beginning on page 41, and from the last paragraph beginning on page 44 through the last paragraph beginning on page 48. The material is claimed by claims 49, 83, 94, and 95. If this application is technically accurate and complete, kindly execute the enclosed filing documents in the order listed below:

DECLARATION:
Please review the Declaration and, if the information is correct, date and sign the Declaration below your name where indicated;

ASSIGNMENT:
After the Declaration is signed, please review the Assignment and, if the information is correct, date and sign above your name where indicated, preferably in the presence of a Notary Public, who should then date, sign and seal where indicated.

Note that there are two date columns on the assignment. In the first date column, you should write the date on which you signed the Assignment. In the second (far right) date column, you should write the date on which you signed the Declaration. You should sign the Assignment only _after_ signing the Declaration.

SMALL ENTITY STATEMENT:

Improperly claiming small entity status can result in unenforceable patent rights.
Therefore, we have attached an addendum regarding the qualifications for
claiming small entity status. Please have Keshav review the addendum. If
Keshav determines that entitlement to small entity status is appropriate, please
have Keshav date and sign the Small Entity Statement where indicated.

Kindly return the signed documents and the specification, including claims,
abstract and drawings, to me in the enclosed return Federal Express envelope.

Please contact me at (650) 858-7291 if you have any questions or comments
regarding this or other matters.

Sincerely,
FENWICK & WEST LLP

Jeff Brill

Enclosures
cc: Robert Sachs (w/o enclosures)
21816/04466/DOCS/998968.1

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3 To
Recipient's Name: Pawan Goyal
Phone: (650) 210-0300

Company: Ensim Corporation

Address: 1215 Terra Bella Avenue

City: Mountain View   State: CA   ZIP: 94043

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21816-04464

3 To (please print and press hard)

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February 10, 2000

JEFF BRILL

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1215 Terra Bella Avenue
Mountain View, CA 94043

RE: U.S. Patent Application
        Title: RESTRICTING COMMUNICATION OF
                    SELECTED PROCESSES TO A SET OF
                    SPECIFIC NETWORK ADDRESSES
        Inventor: Pawan Goyal
        Our Ref.:   21816-04464 (Case 4464)

Dear Pawan:

Enclosed is the latest version of the above-referenced application for your review. This version of the application reflects our conversation of February 9, 2000. The material we discussed is described in Section ii, on pages 47 and 48. If this application is technically accurate and complete, kindly execute the filing documents that were previously sent to you with my letter of February 7, 2000 according to the instructions contained therein.

Kindly return the signed documents and the specification, including claims, abstract and drawings, to me in the return Federal Express envelope that was previously sent to you on February 7, 2000.

Please contact me at (650) 858-7291 if you have any questions or comments regarding this or other matters.

Sincerely,
FENWICK & WEST LLP

Jeff Brill

Enclosures
cc: Robert Sachs (w/o enclosures)
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